APPENDIX L

Preliminary Estimates of Capital Costs of Stormwater Ponds for Quantity and Combined Quantity and Quality Control

PRELIMINARY ESTIMATES OF CAPITAL COSTS OF STORM WATER PONDS FOR QUANTITY CONTROL AND COMBINED QUANTITY AND QUALITY CONTROL

November 1998

Cases Studied

Preliminary estimates of capital costs of storm water ponds are presented in the attachments for the following cases.

1. Ponds **in** the Water Supply Watersheds
   - Cost of **wet detention ponds** without peak runoff control (Water Quality control only)
   - Cost of **wet detention ponds** with peak runoff control (Water Quality and Quantity control)

2. Ponds **outside** the Water Supply Watersheds
   - Cost of **dry detention ponds** for peak runoff control (Water Quantity Control only)
   - Cost of **wet detention ponds** with peak runoff control (Water Quantity and Quality control)

Observations

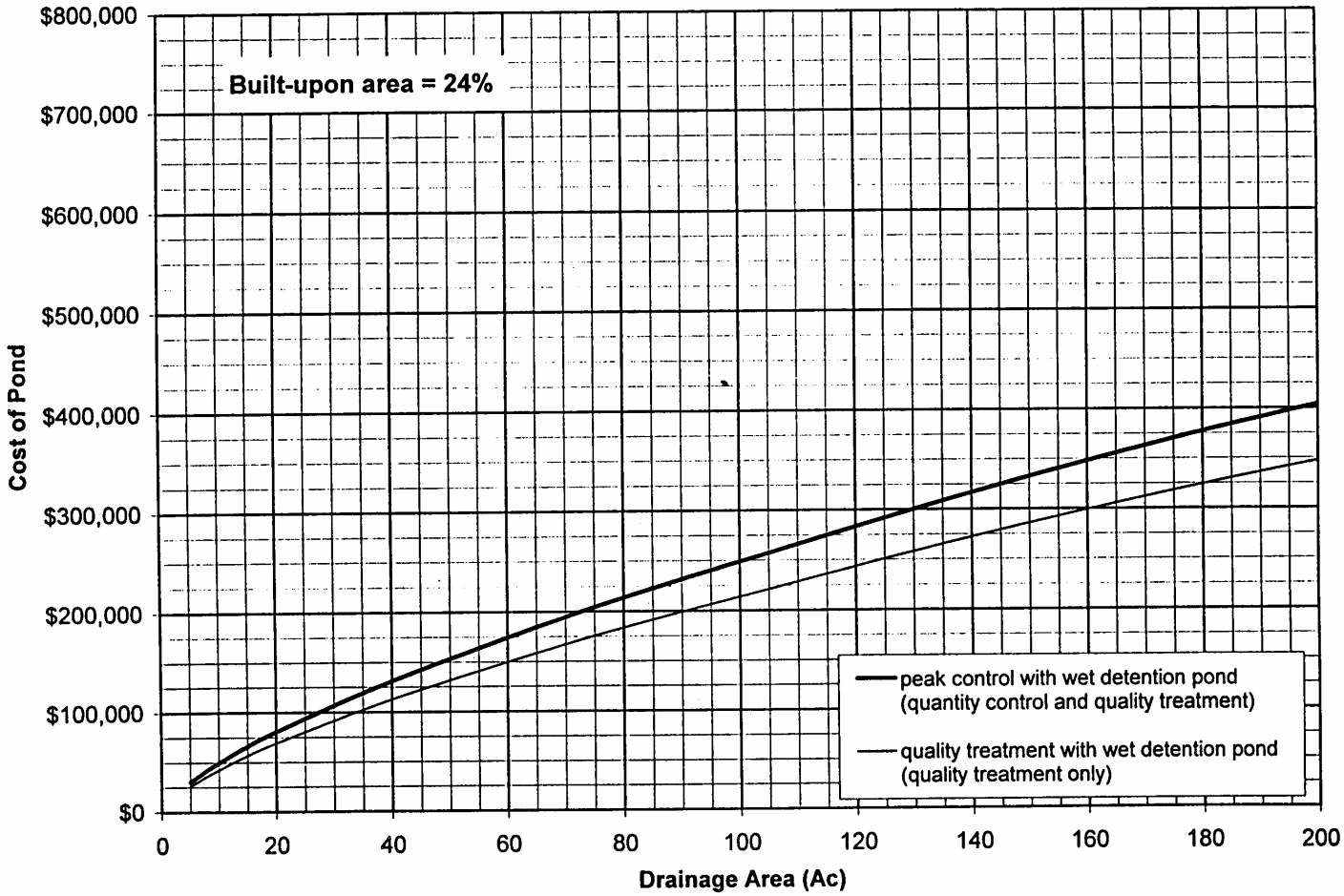
- **In the Water Supply Watersheds**, the incremental cost of providing for peak runoff (Quantity) control (in addition to the required water quality control storage), is approximately 17% of the base cost of the water quality wet pond.
- **Outside the Water Supply Watersheds**, the incremental cost of providing for Quality control (in a wet detention pond) is approximately 45% of the base cost of peak runoff (Quantity) control in a dry detention pond.

Methodology Used in the Cost Estimates

Pond storage volumes (V_s) required for the different cases stated above were estimated based on Guilford County's "Water Quality Protection Manual" and data from selected projects in Greensboro. Capital Cost (CC) estimates for the required storage (V_s in cubic feet) in the ponds were then derived by using a formula (with a suitable adjustment to the constant in the formula) presented in a paper by the Center for Watershed Protection based on studies of a number of ponds in the Mid-Atlantic region: $\mathbf{CC = 30\ (V_s)^{0.7}}$. The cost estimate includes engineering and administration costs.

Preliminary Estimate of Capital Costs for Ponds

Pond options <u>inside</u> water-supply watershed areas



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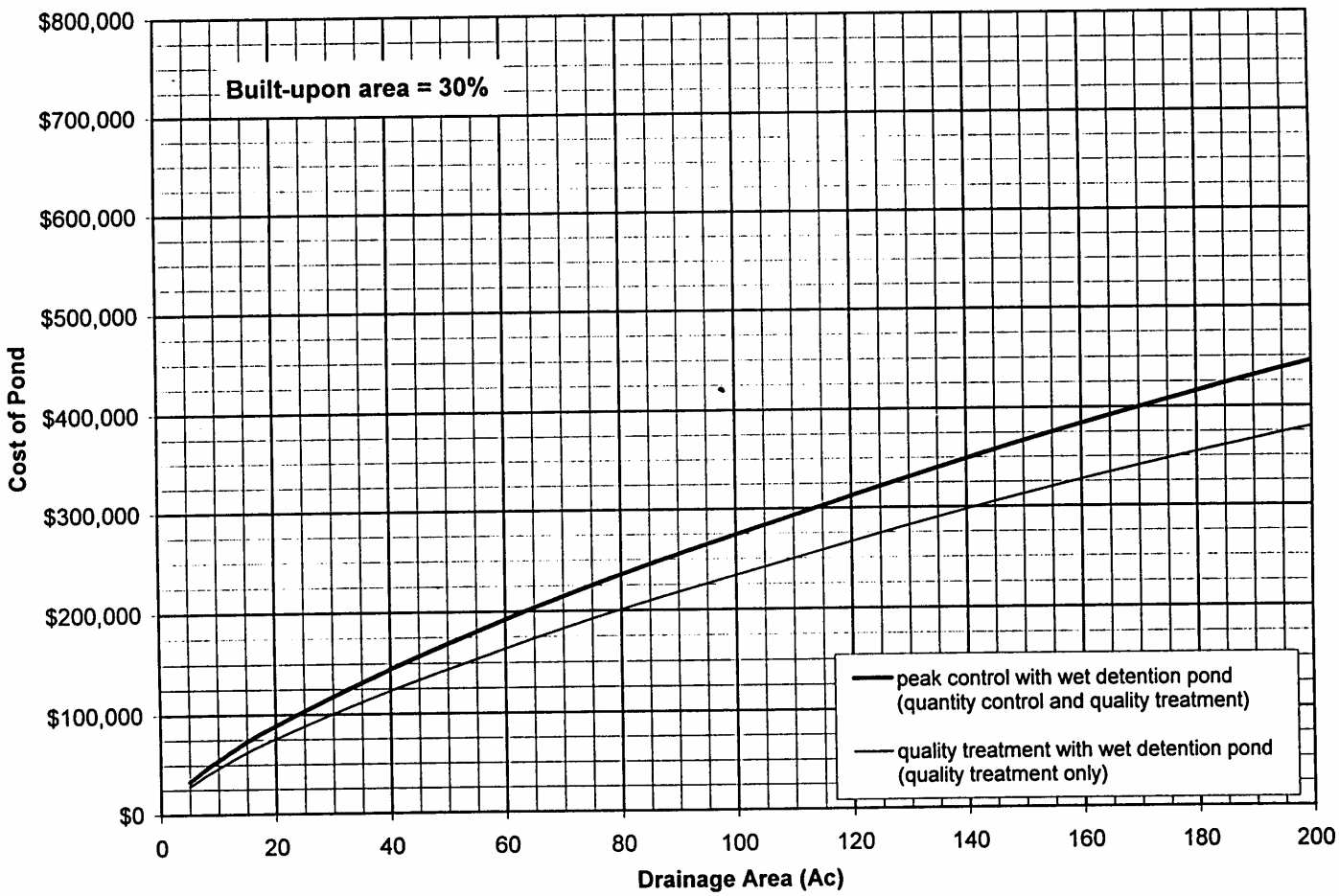

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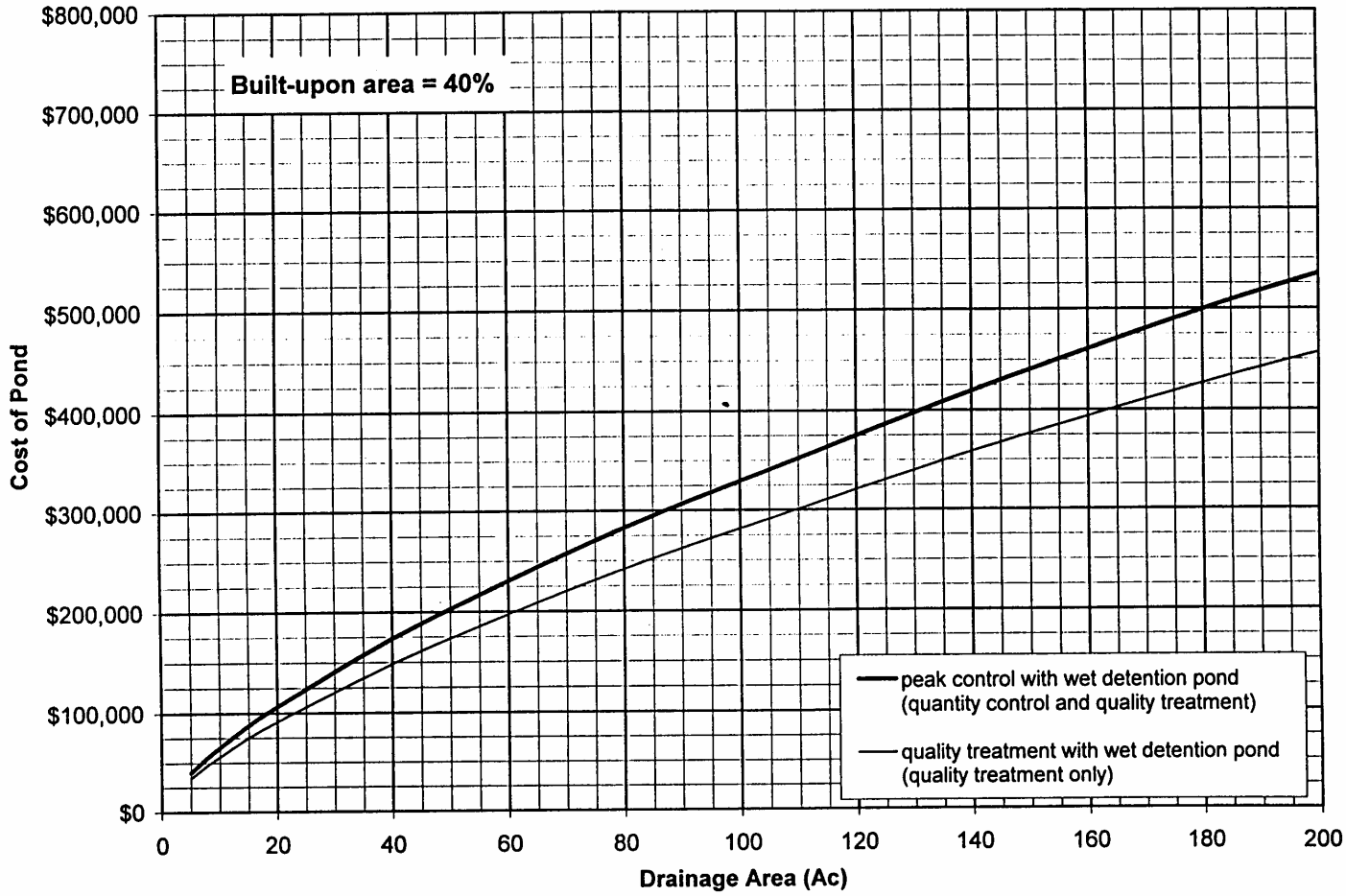

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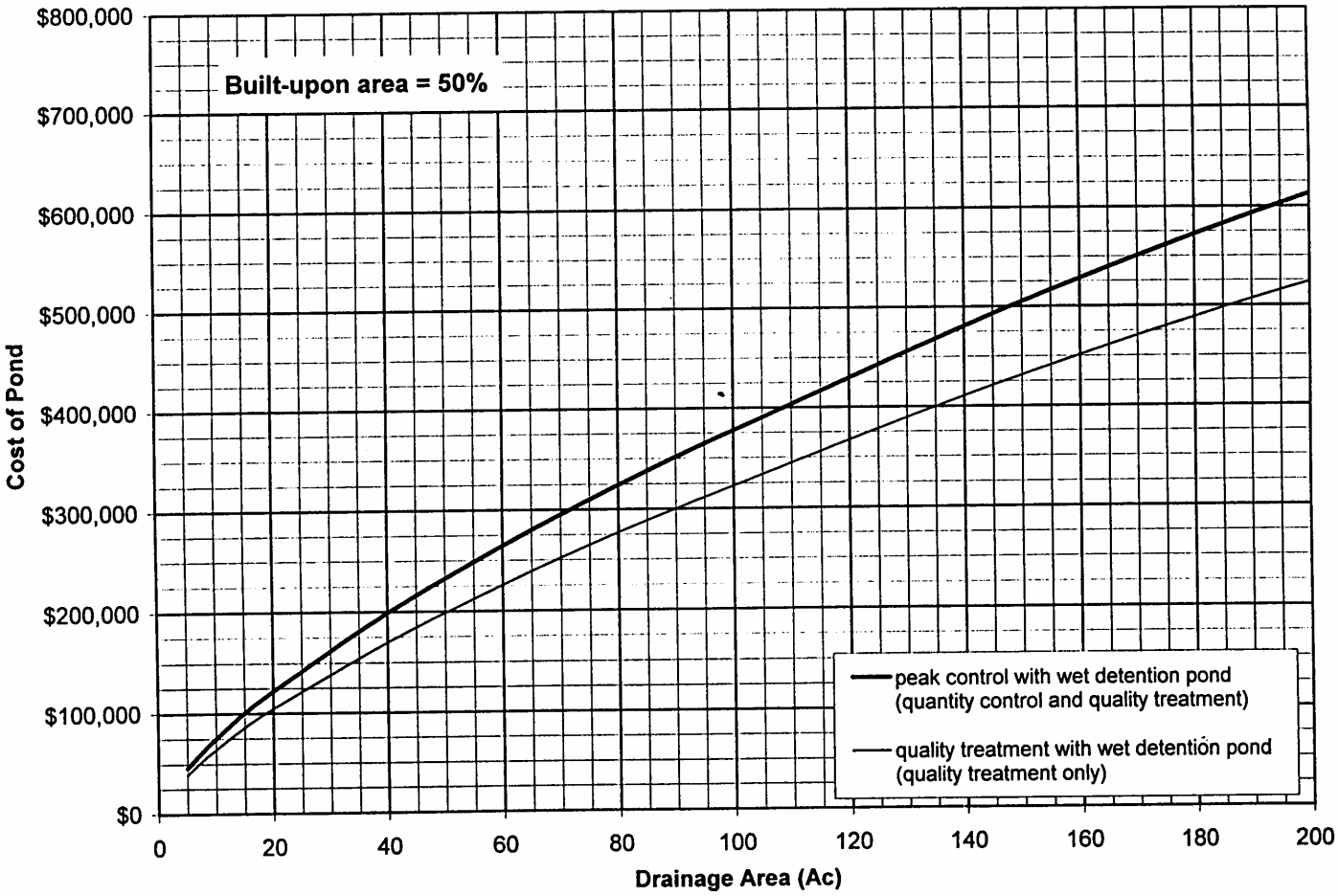

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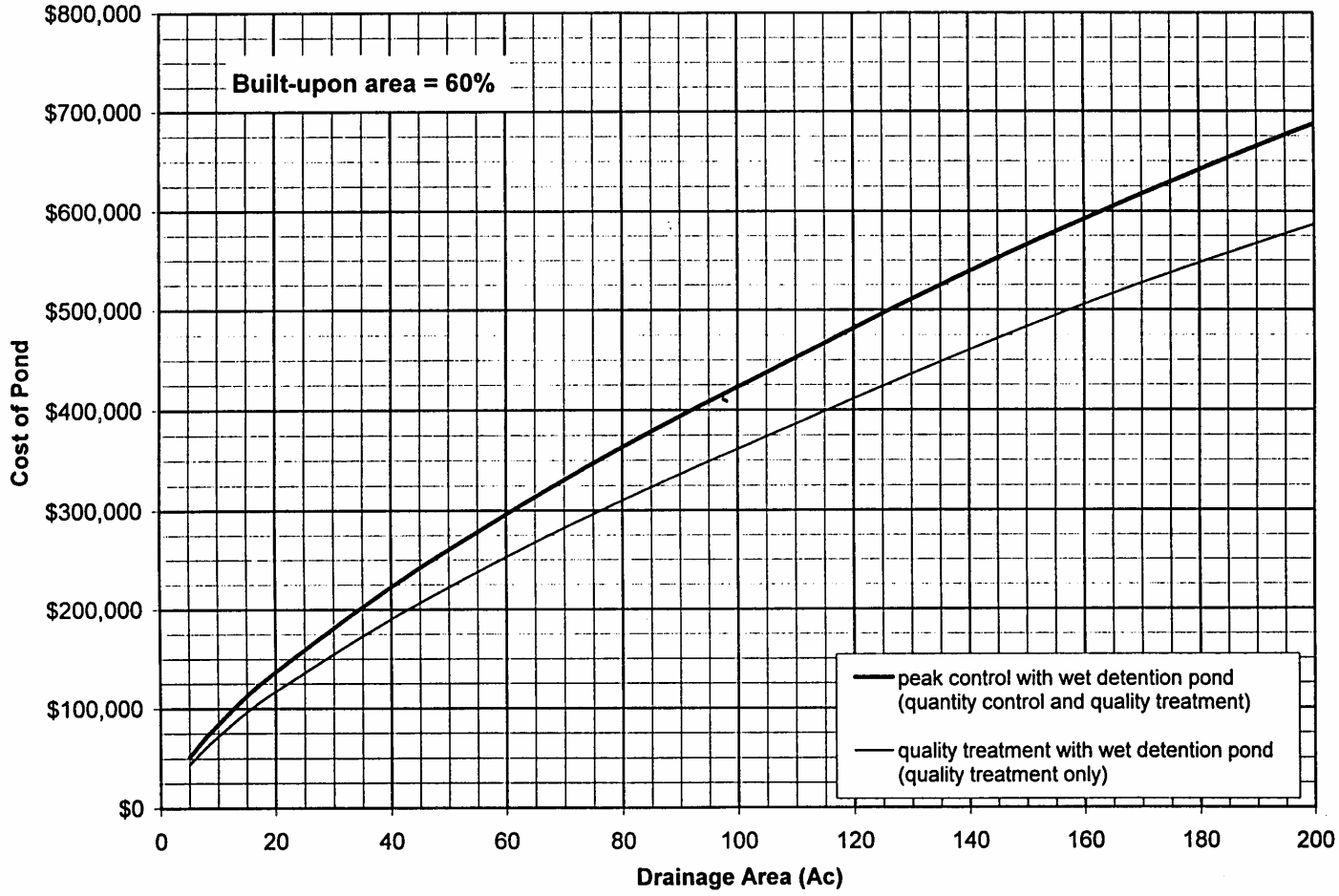

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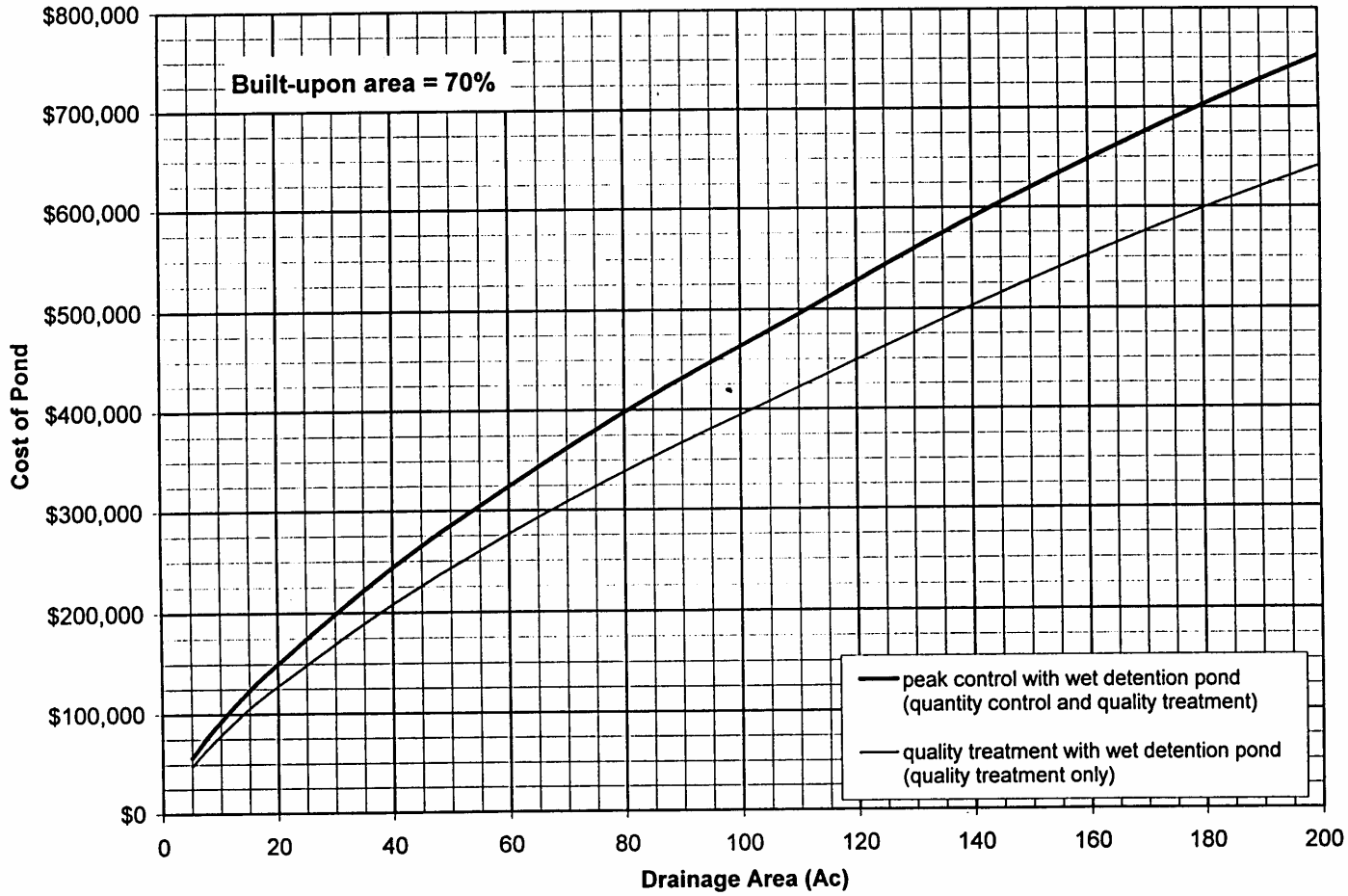

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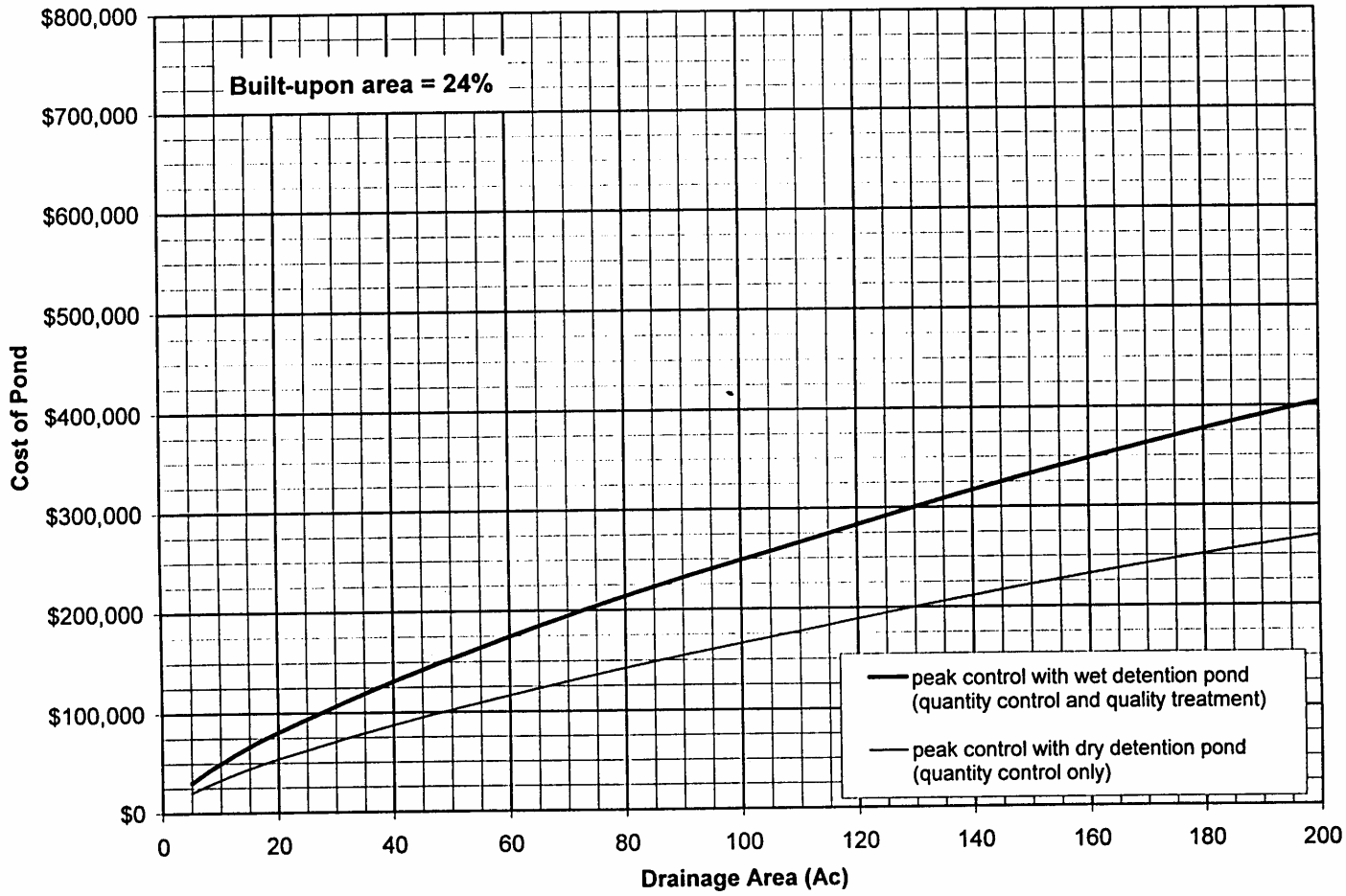

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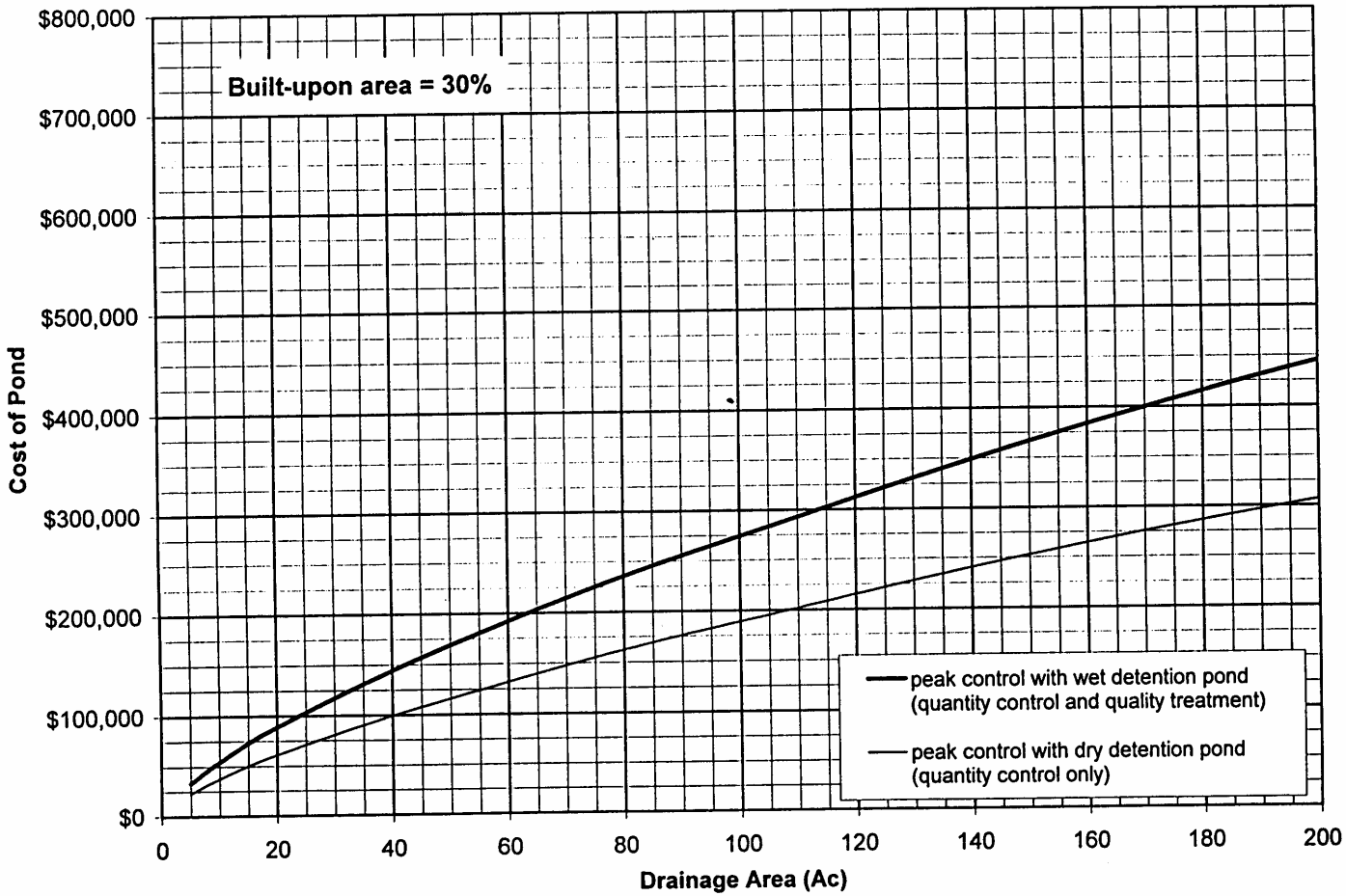

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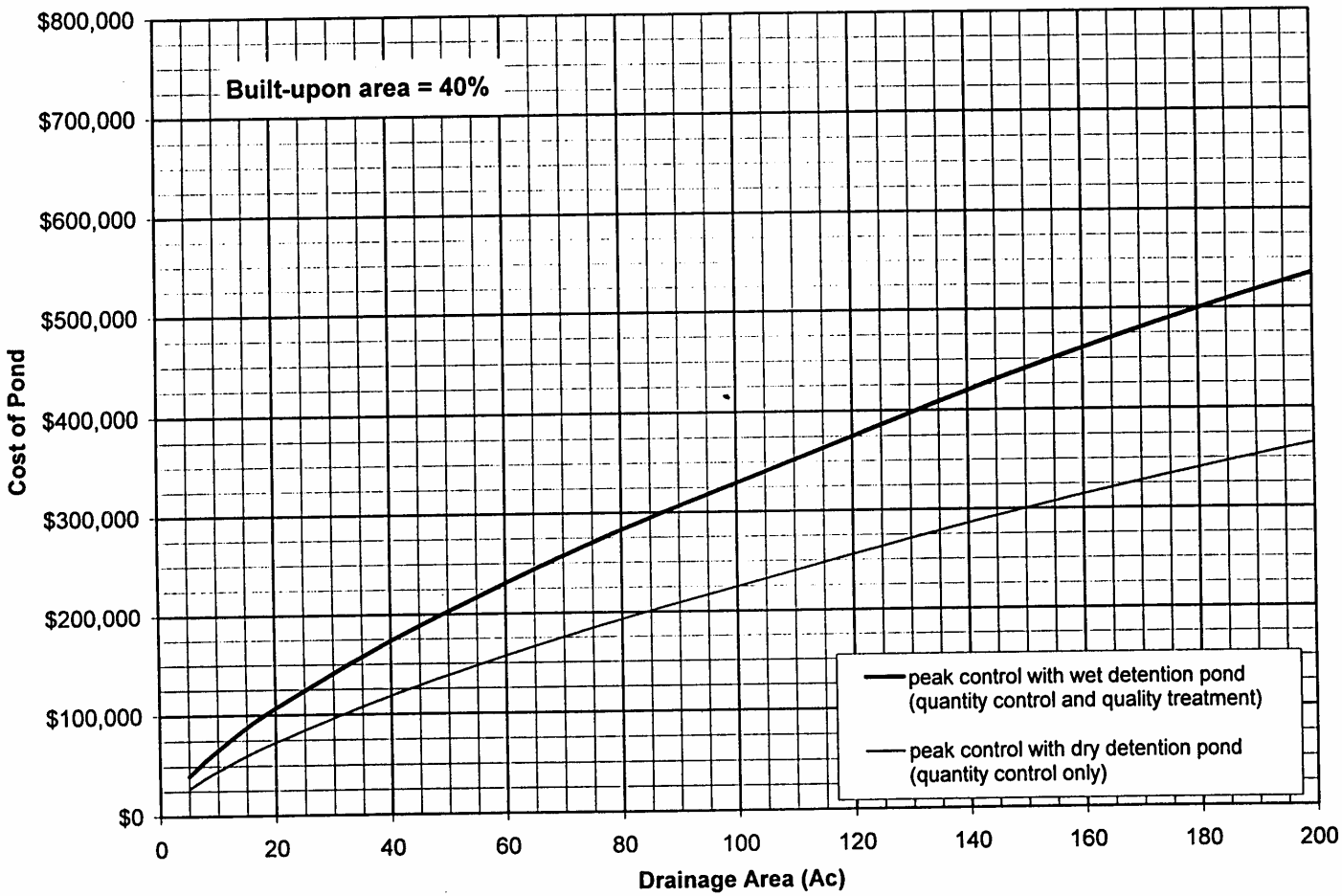

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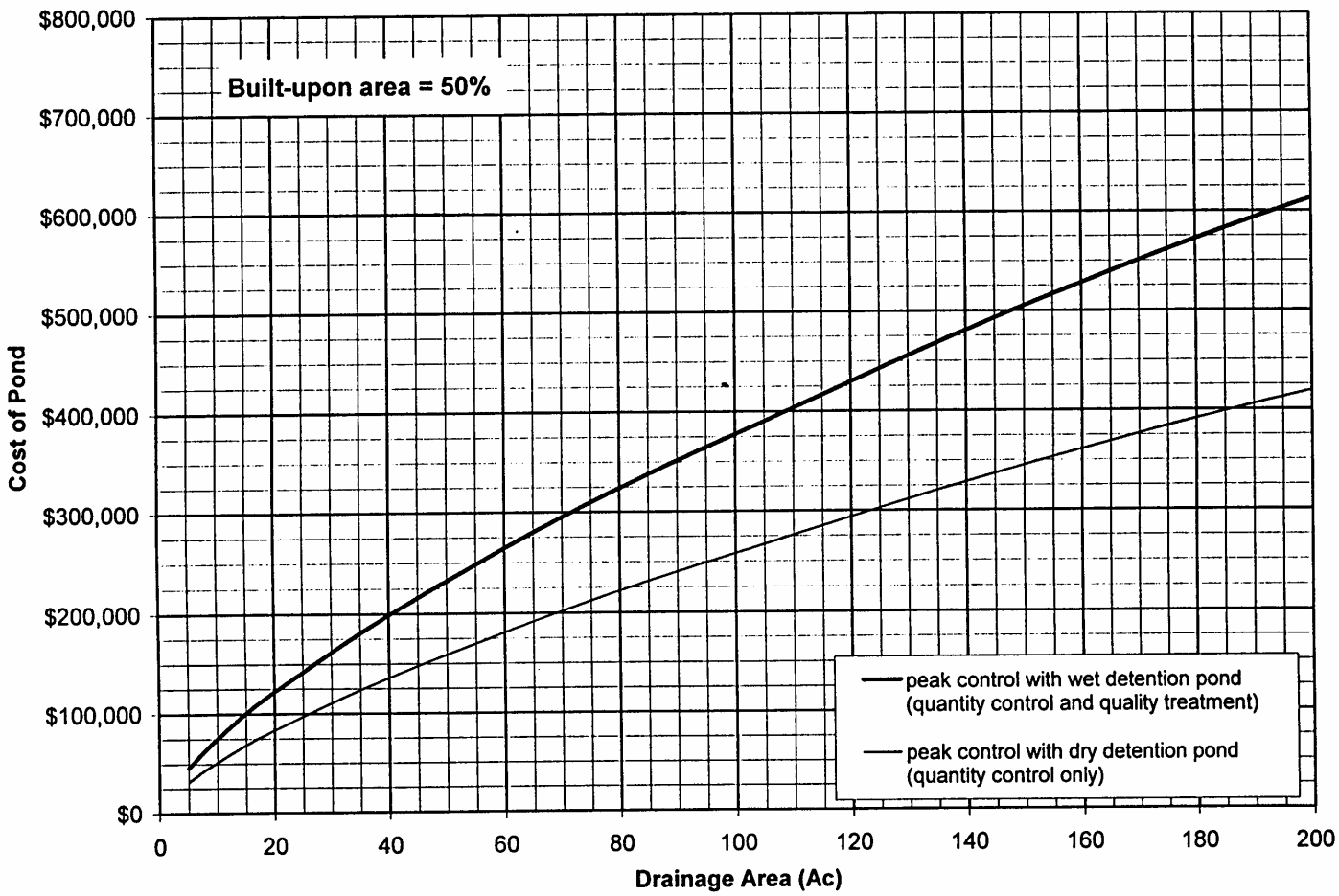

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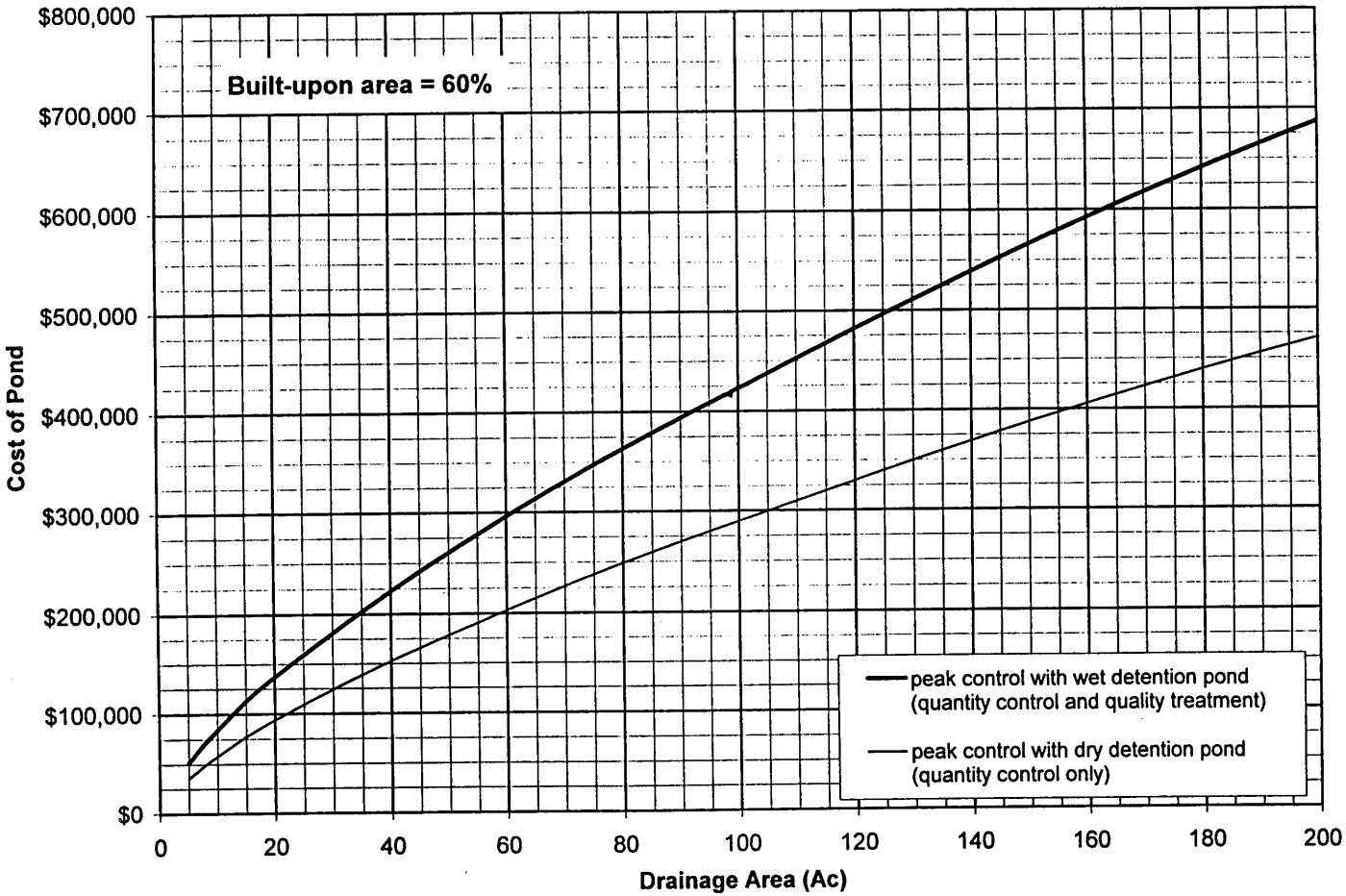

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